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Diffusion of Practice-based Research in Local Public Health: What Differentiates Adopters from Non-Adopters?

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Diffusion of Practice-based Research in Local Public Health: What Differentiates Adopters from Non-Adopters?

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Georgia's large-scale, small-feel research university

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Educational Need/Practice Gap:

- **Importance of PBR** is increasingly recognized for its contribution to public health practice across settings, populations, contexts, and cultures
- **A large proportion of LHDs are not yet involved in PBR activities**



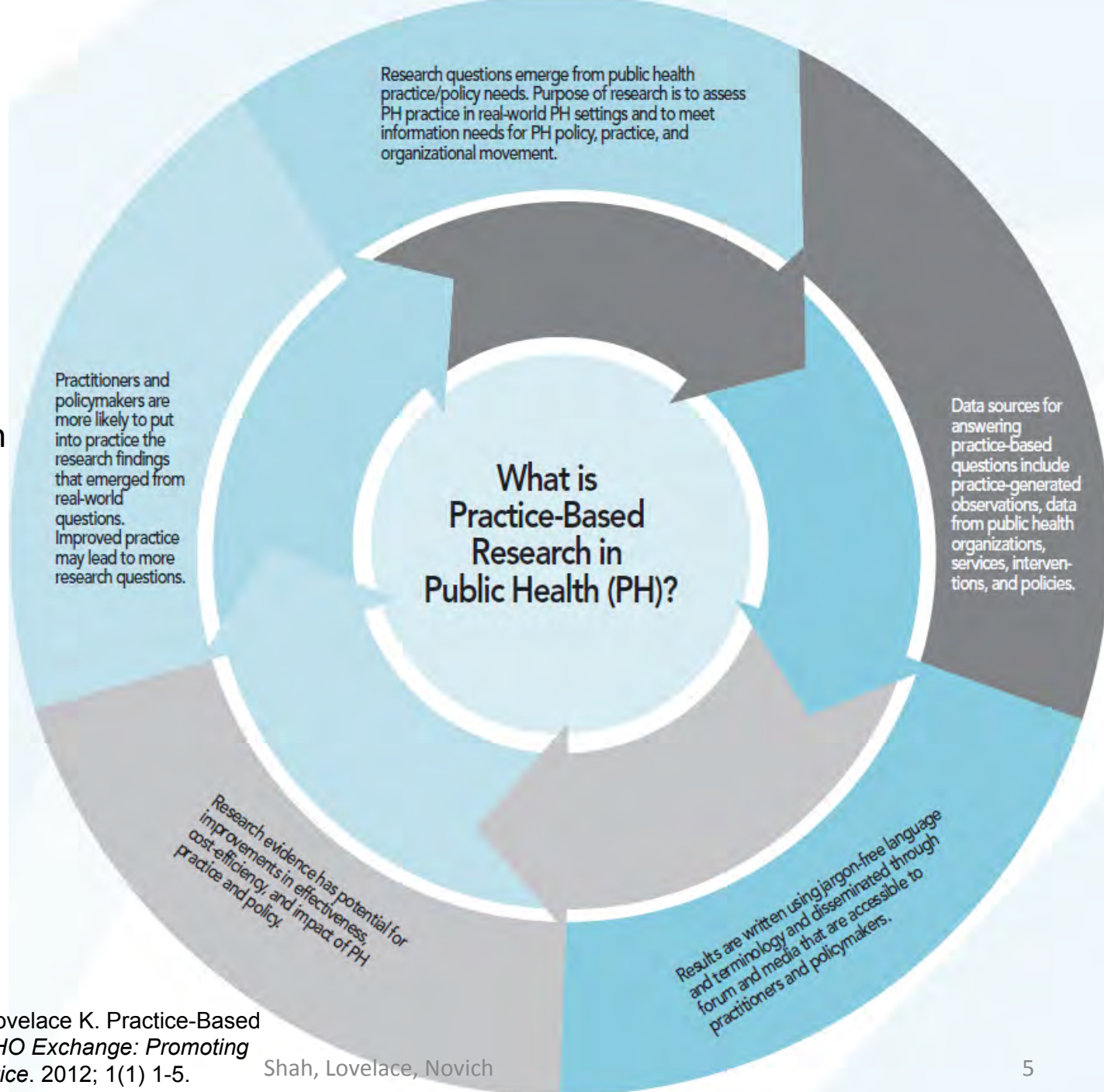
Objectives

- To briefly discuss what constitutes practice-based research (PBR).
- To examine the level of local health departments' (LHDs) involvement in various PBR activities.
- To highlight characteristics associated with LHDs' performance of PBR activities.



Practice-Based Research:

“PBR functions as a strategy for designing, implementing, interpreting, and translating research studies in ways that are directly responsive to the information needs of public health practitioners and the communities they serve”



SOURCE: Mays GP, Shah GH, Lovelace K. Practice-Based Research in Public Health. *NACCHO Exchange: Promoting Effective Local Public Health Practice*. 2012; 1(1) 1-5.

Shah, Lovelace, Novich

Data

Data drawn from 2010 National Profile of Local Health Departments Study (Profile):

- Study population: all 2565 LHDs
 - Overall response rate: 82% (2,107 respondents)
- Questions on PBR activities administered to a stratified random sample of 625 LHDs
 - Response rate: 83% (516 respondents)



Statistical Methods (Univariate/Bivariate)

- Dependent Variables:
 - LHDs performed no PBR activity vs. at least one (Dichotomous)
 - Number of activities performed (Count variable, ranging from 0-8)
- Descriptive statistics (Percentages; Means)
- Bivariate analysis:
 - ANOVA for subgroup mean number of activities;
 - For dichotomous dependent variable (no activity vs. some activity):
 - Chi-square/Cramer's V for nominal measures of LHD characteristics (e.g. Governance Category)
 - Somers' d for ordinal measures of LHD characteristics (e.g. population category)



Statistical Methods (Multivariate)

- Zero-inflated negative binomial regression
 - Over-dispersion of the dependent variables (Poisson regression not suitable)
 - Equality of the mean and the variance assumed by the Poisson distribution
 - The dependent variable (Number of PBR activities performed by LHDs) had a large proportion of zeroes (37%); so zero inflated model was appropriate
- Used proper sampling weights:
 - To estimate unbiased population parameters based on sample statistics, in order to account for sampling and non-response bias



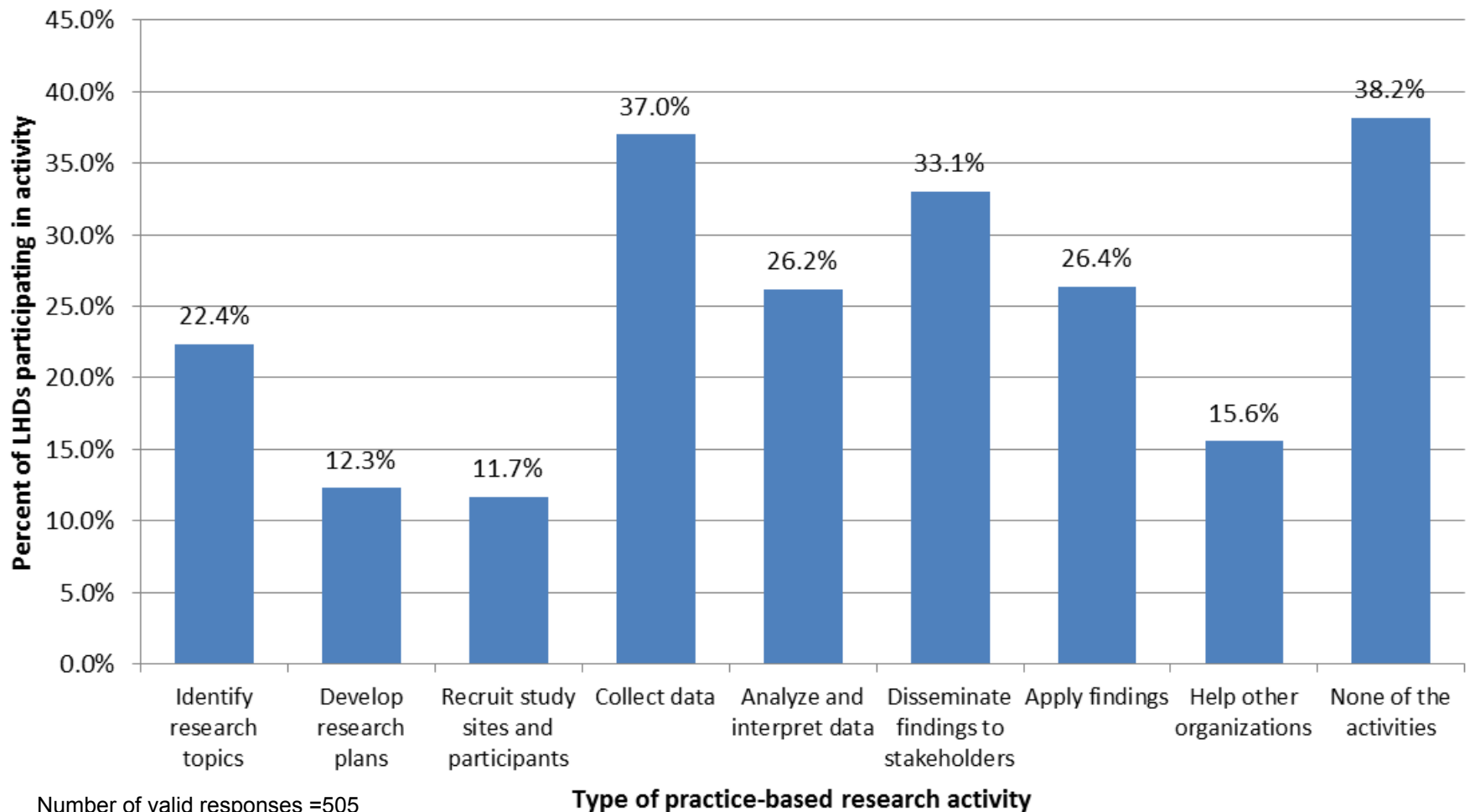
RESULTS

What % of LHD with no PBR activity: 20; 40; 50; or 60?

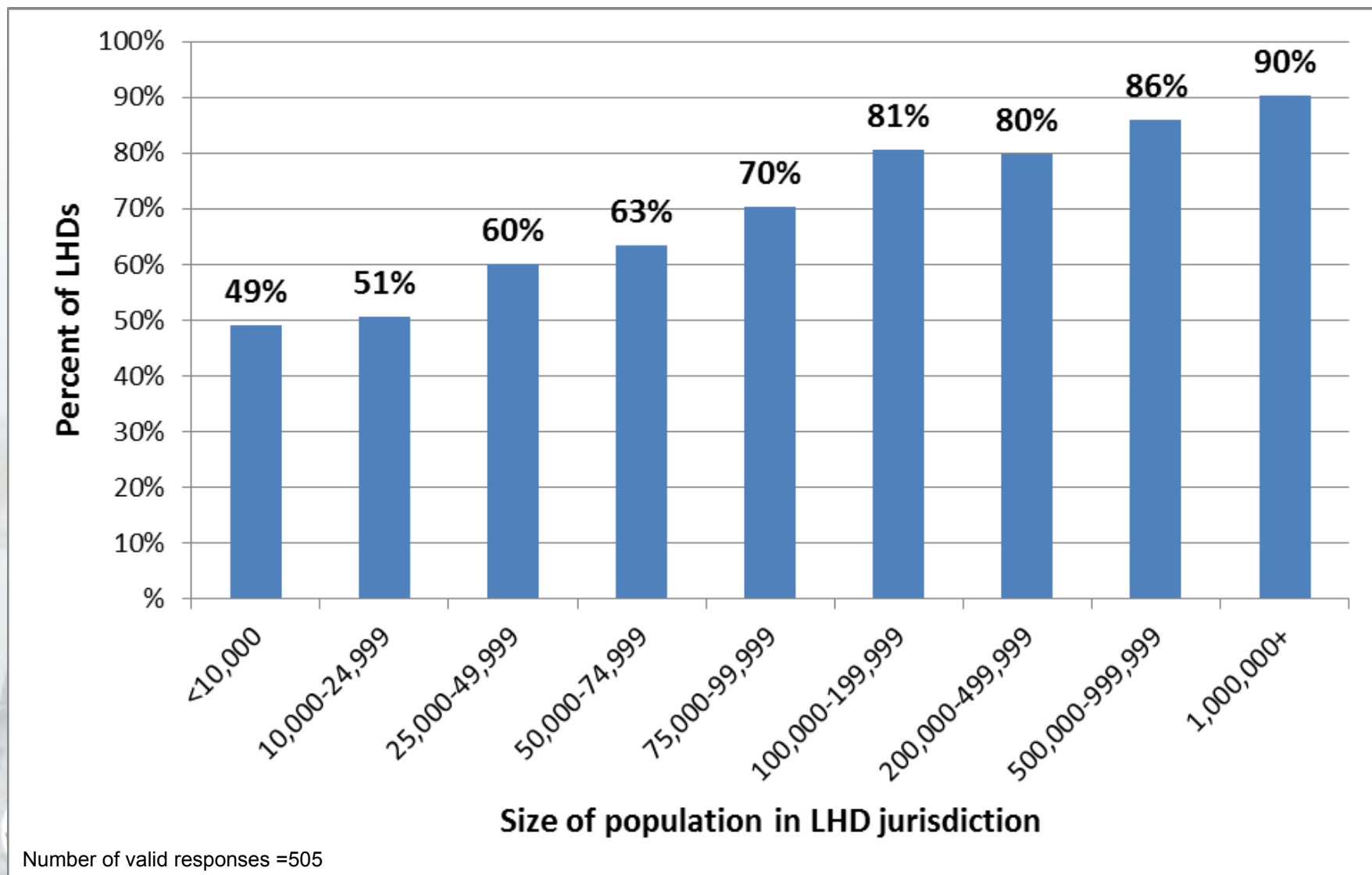


Percent of LHDs Participating in Practice-Based Research Activity in the 12 Months Prior to the Profile Survey, by Type of Activity

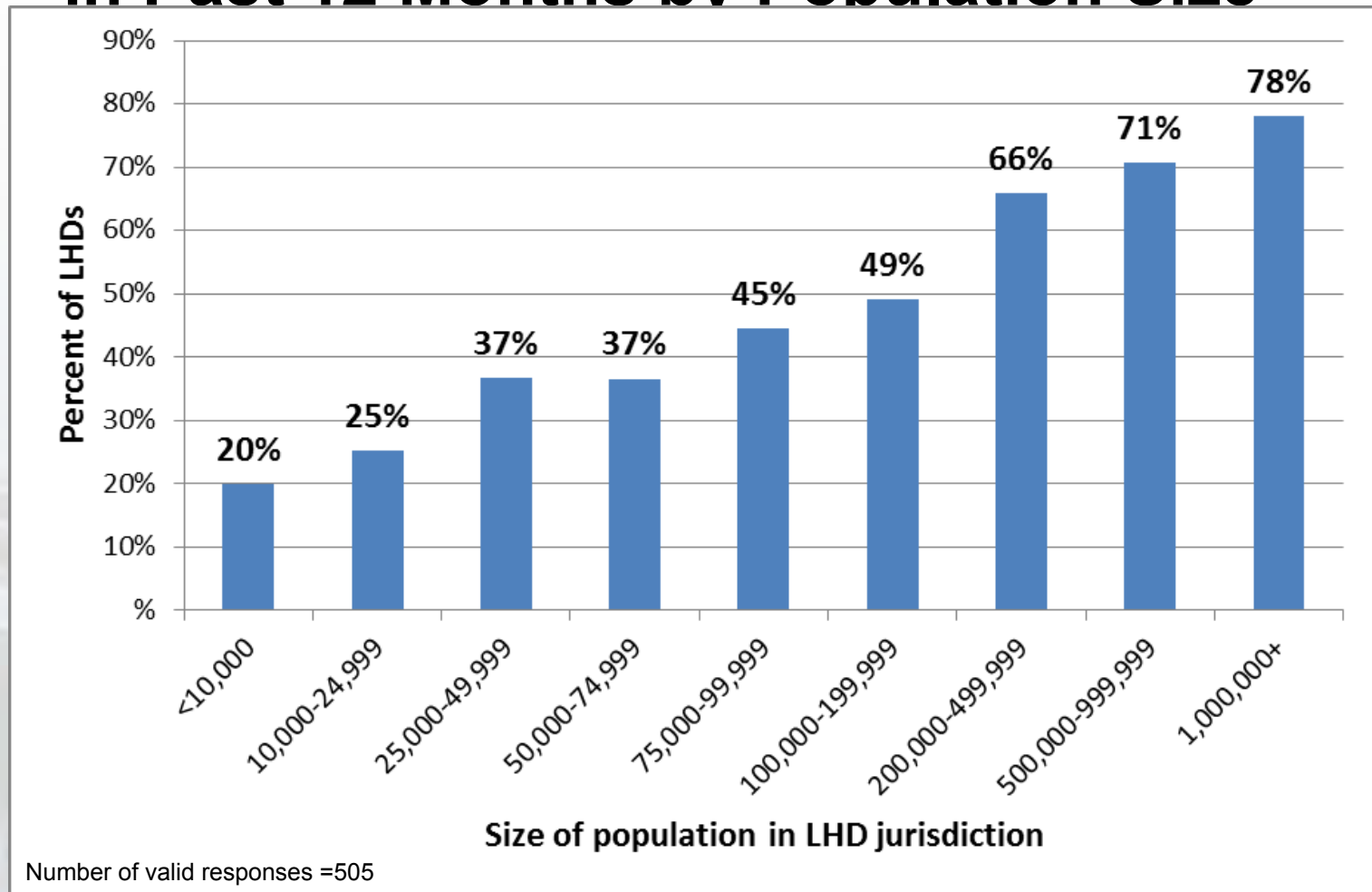
Figure 1: Percent of LHDs participating in practice based research activity in the 12 months prior to the Profile survey, by type of activity



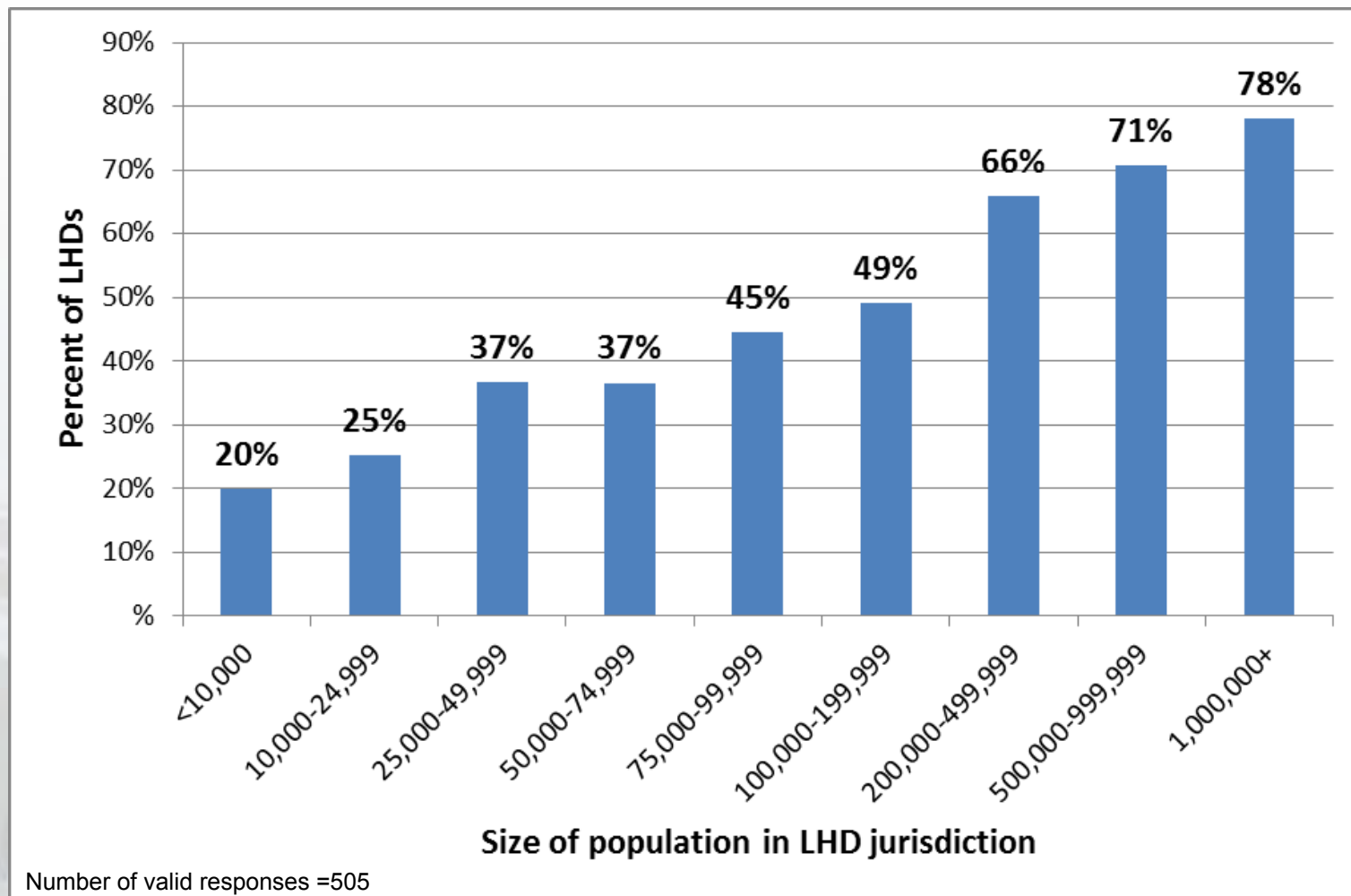
Percent of LHDs Performing At Least One PBR Activity in Past 12 Months by Population Size



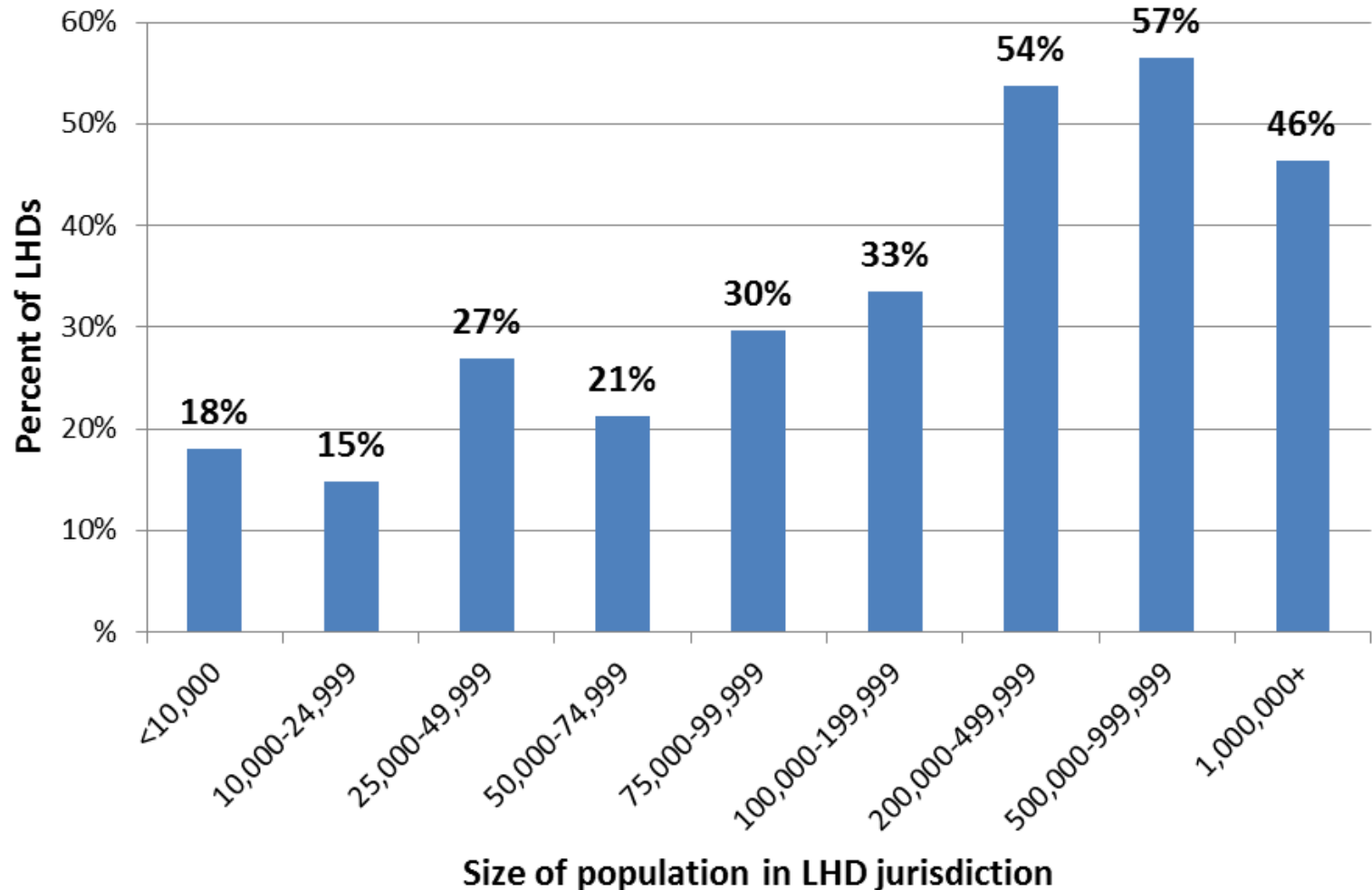
Percent of LHDs Identifying Research Topics in Past 12 Months by Population Size



Percent of LHDs Performing Data Collection in Past 12 Months by Population Size



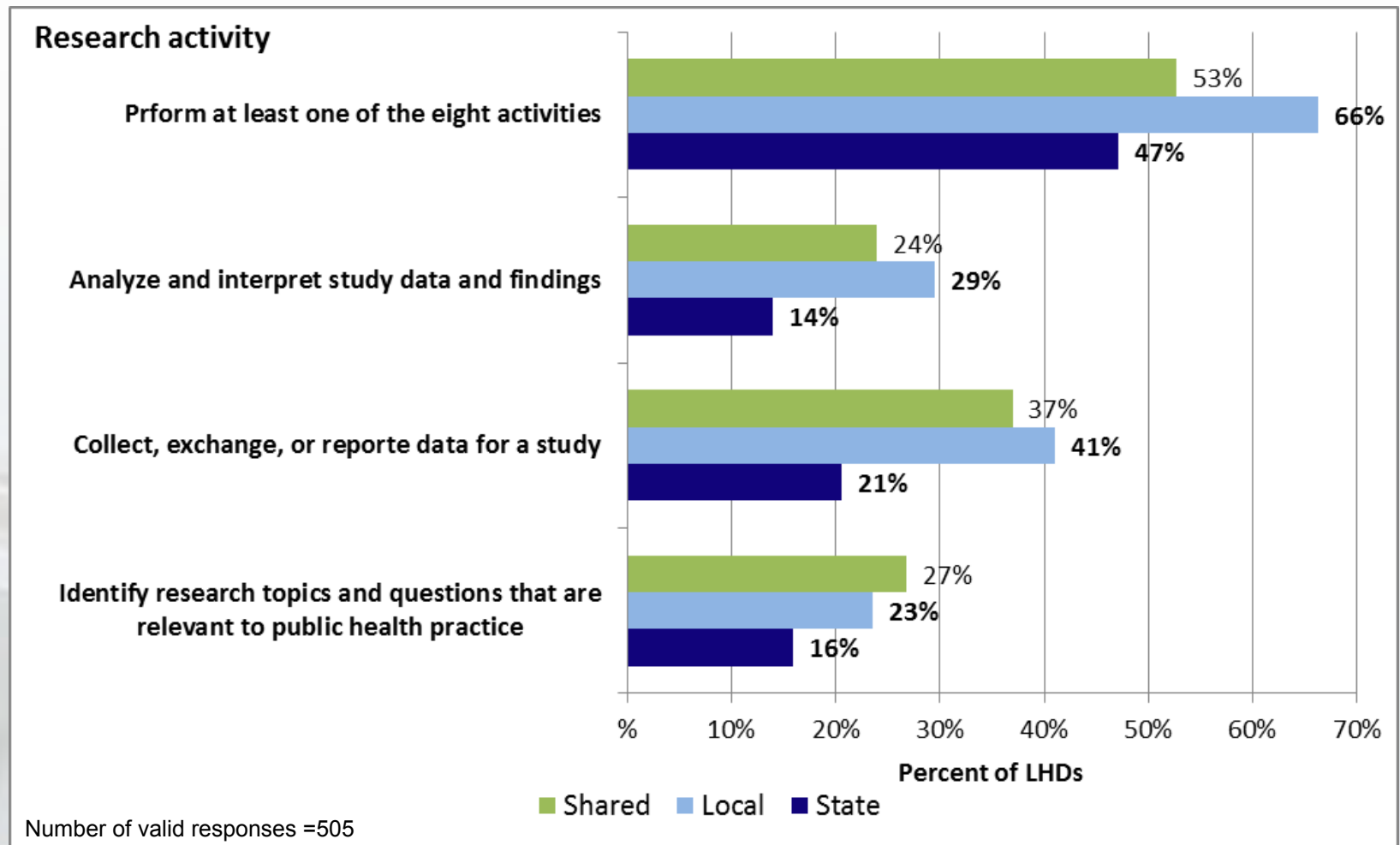
Percent of LHDs Performing Data Analysis in Past 12 Months by Population Size



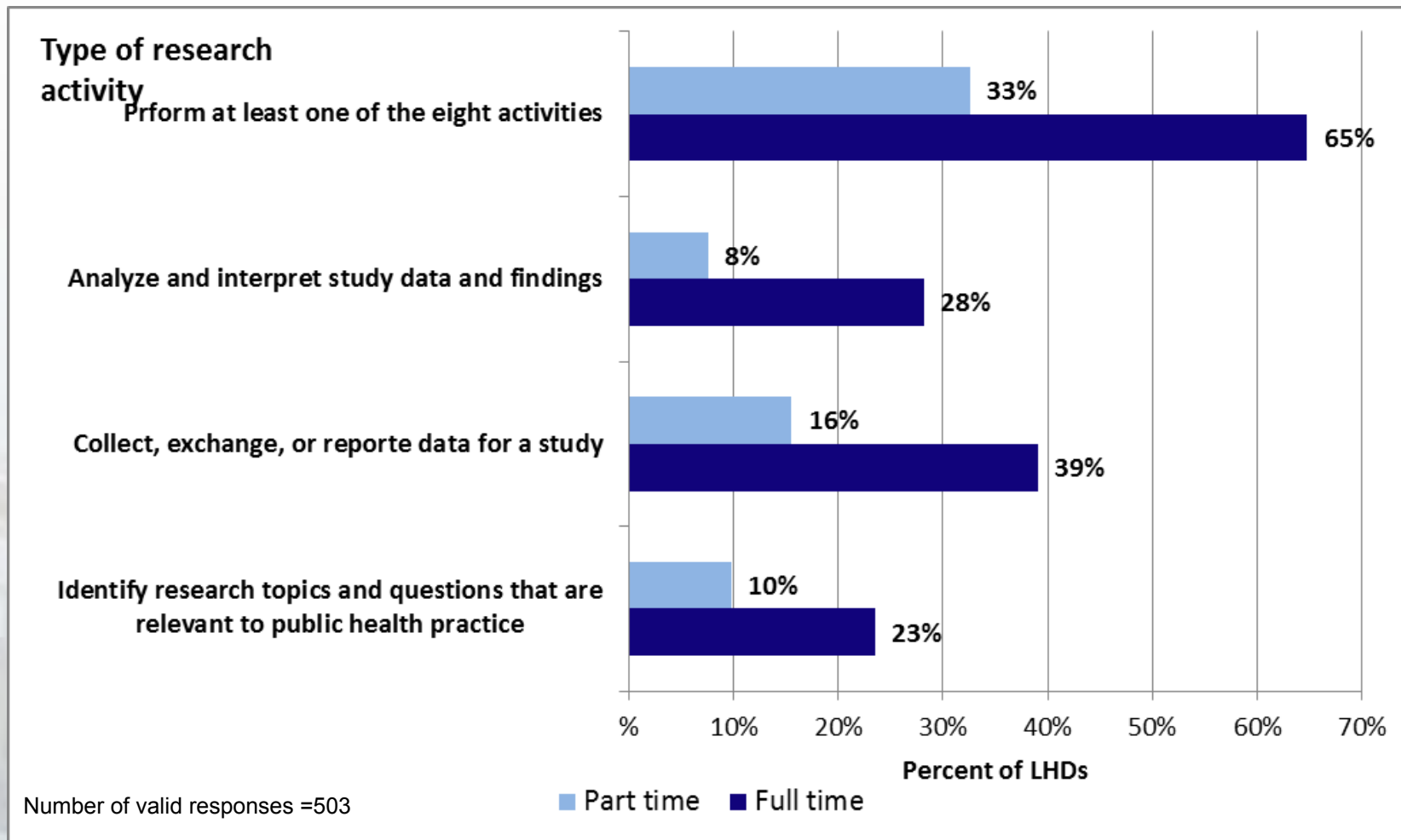
Number of valid responses =505



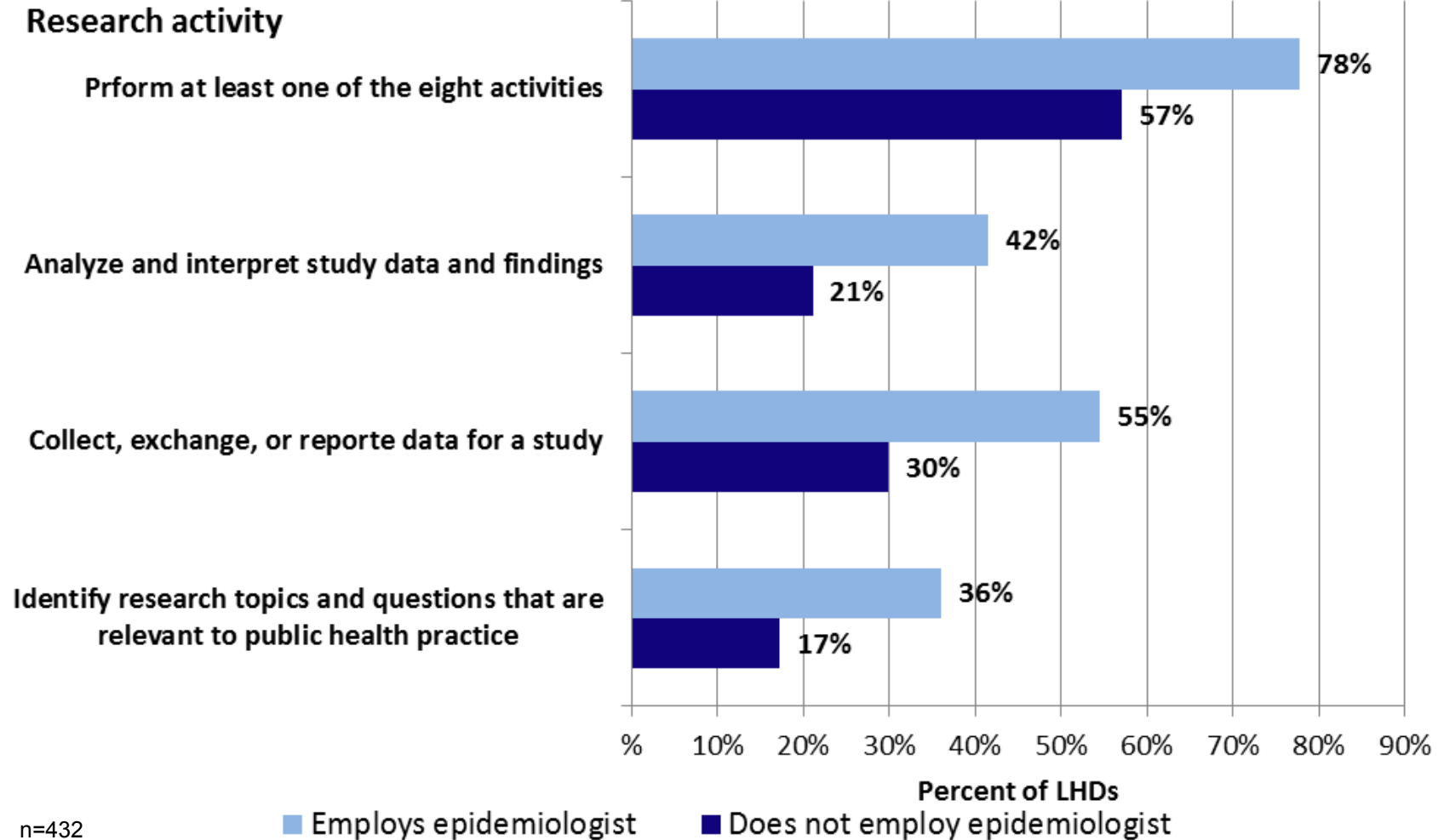
Percent of LHDs Performing Specific PBR Activity in Past 12 Months by Type of Governance



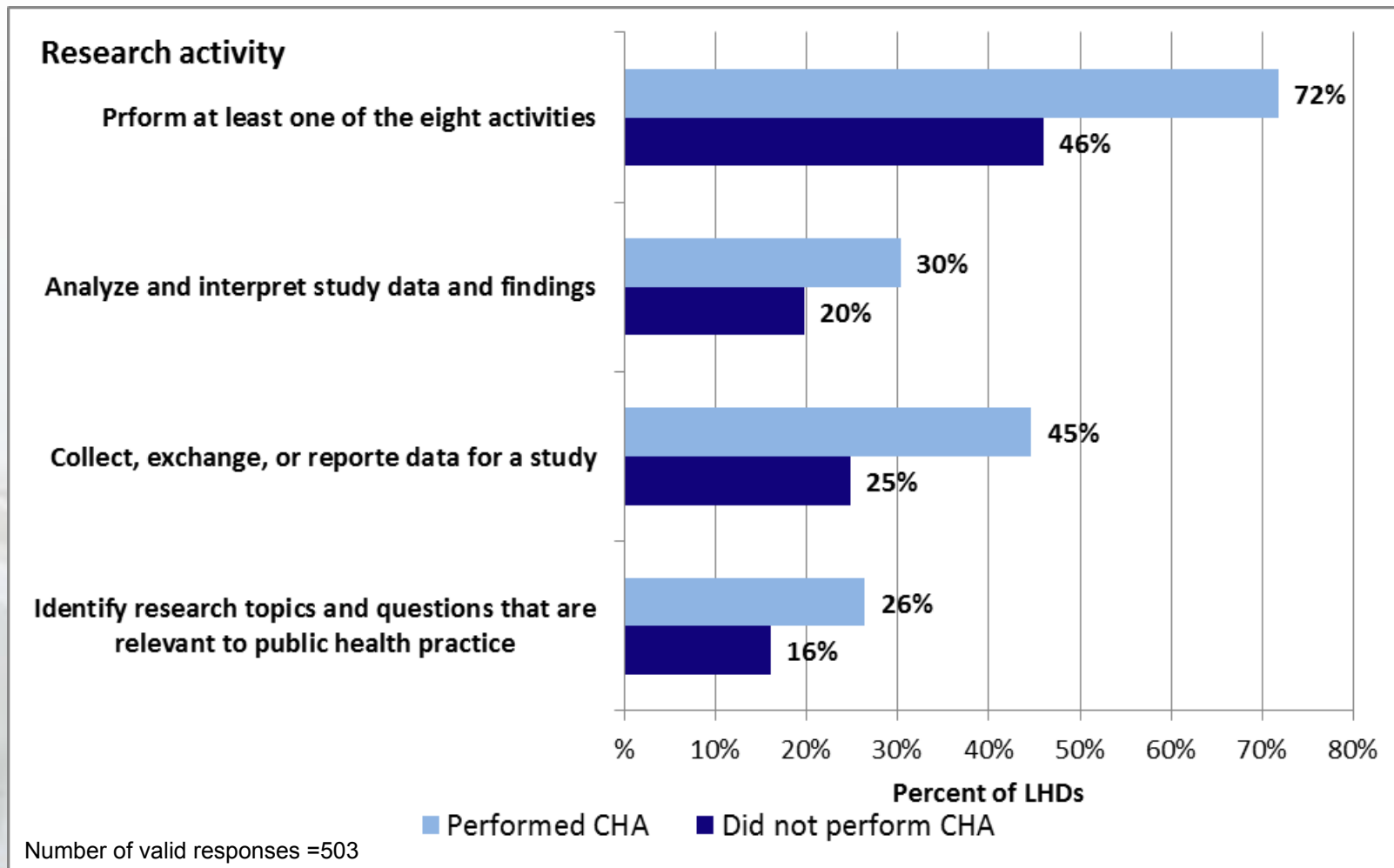
Percent of LHDs Performing Specific PBR Activity in Past 12 Months by Work Status of LHD Top Executive



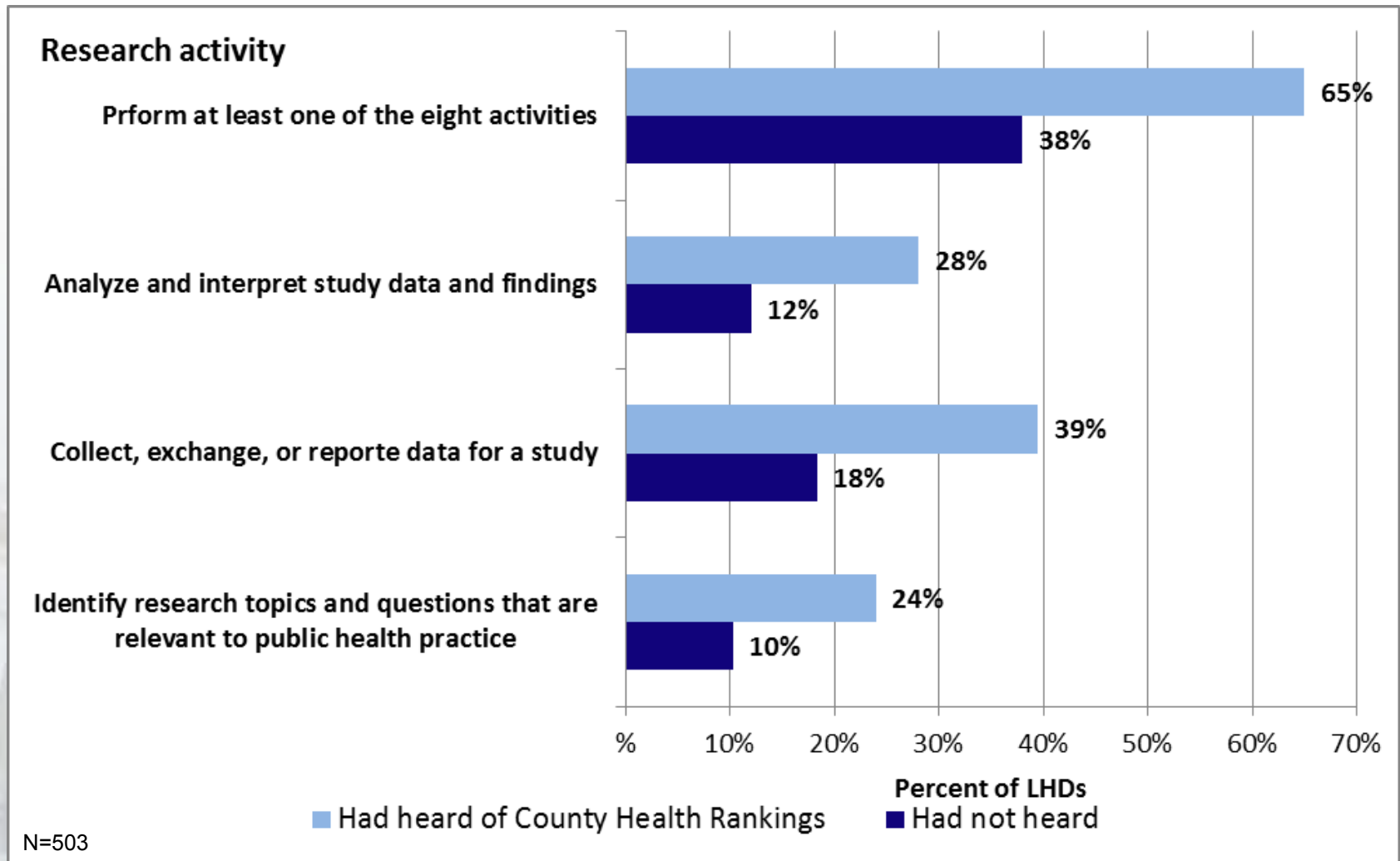
Percent of LHDs Performing Specific PBR Activity in Past 12 Months by whether they Employ Epidemiologist



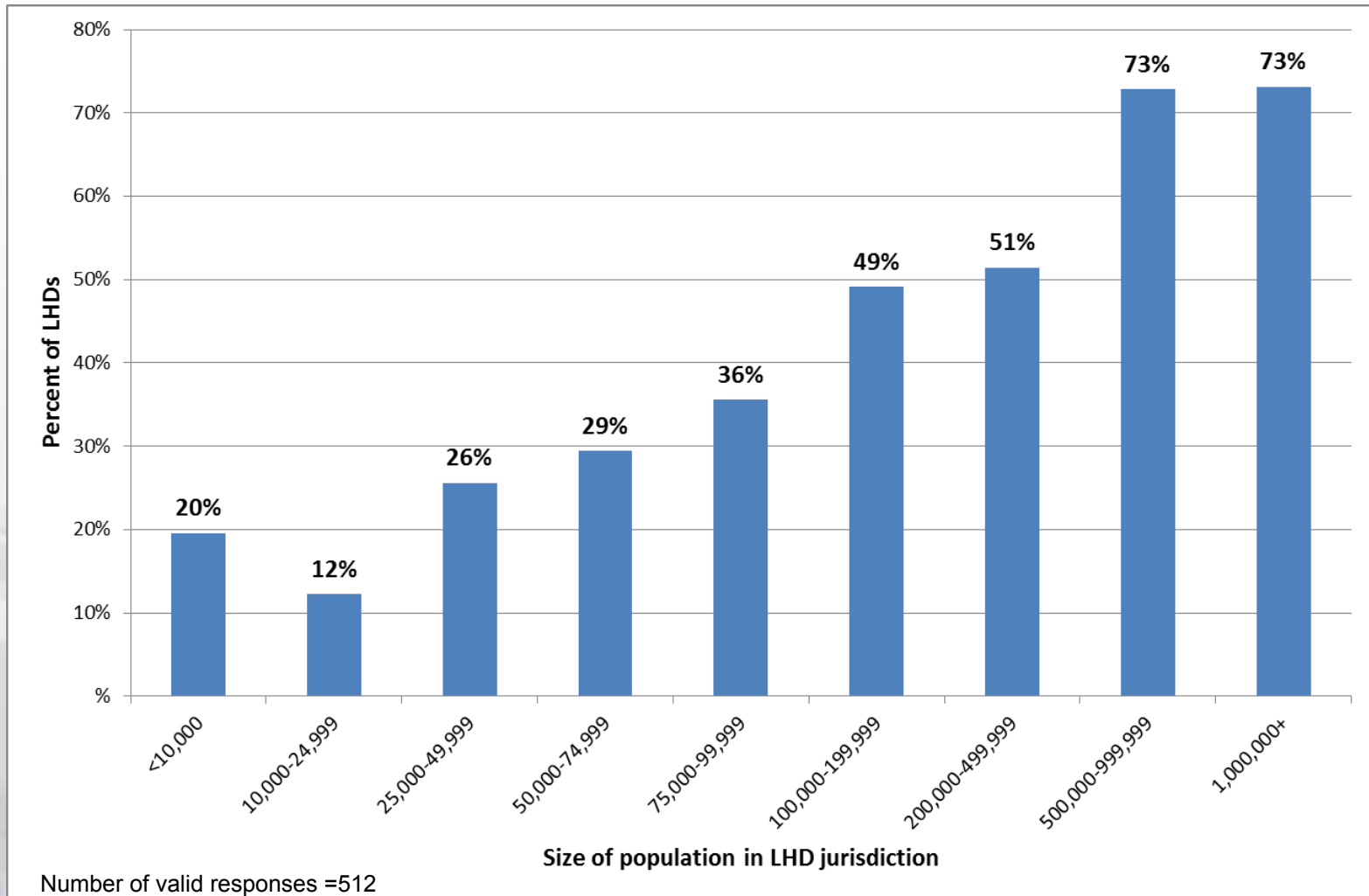
LHDs Performing Specific PBR Activity by whether they Performed Community Health Assessment (CHA) in Last Five Years



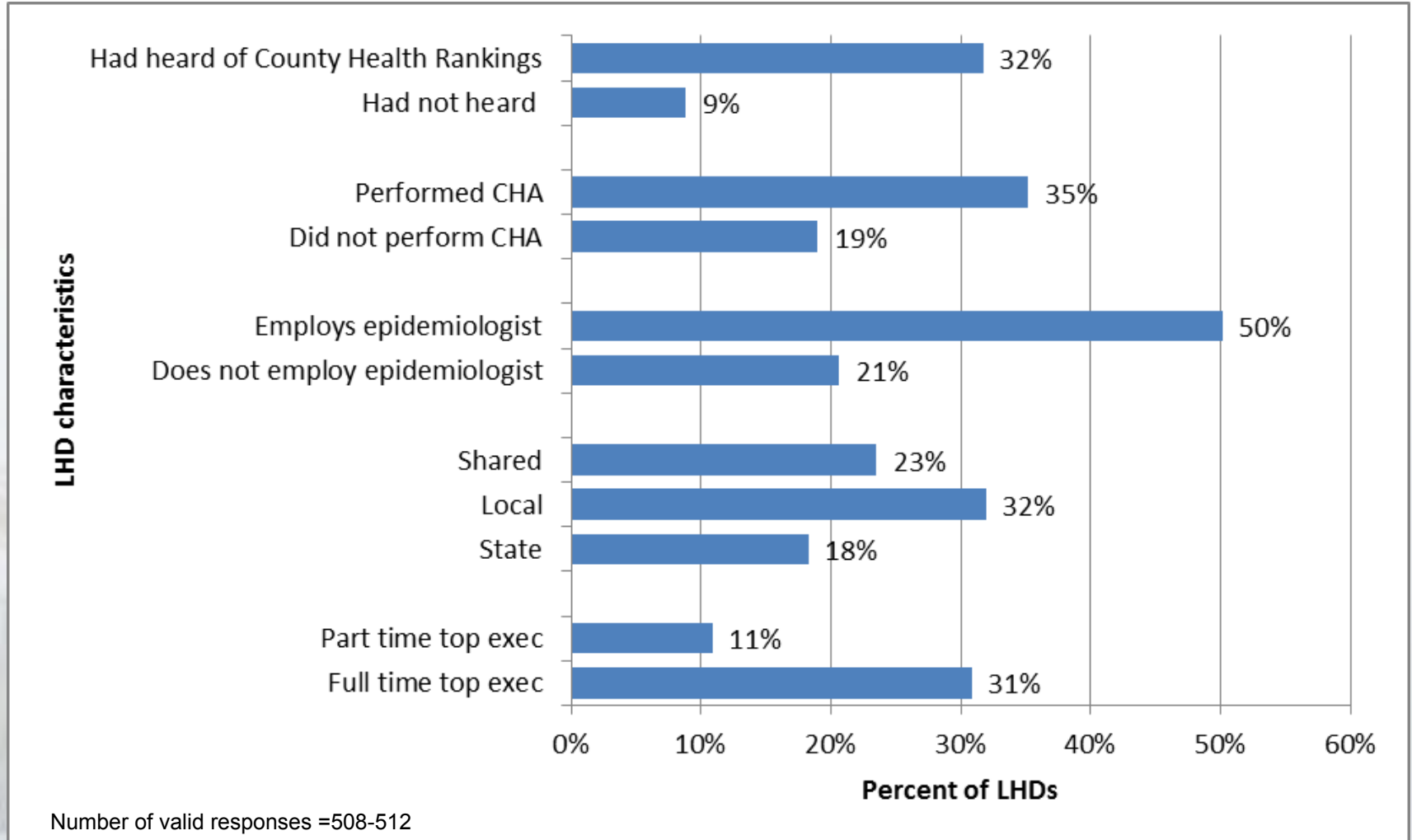
Percent of LHDs Performing Specific PBR Activity in Past 12 Months by knowledge of County Health Rankings Prior to Survey



Percent of LHDs that Participated in Research Studies in the Past 12 Months by Population Size



Percent of LHDs that Had Participated in Research Studies in the Past 12 Months by LHD Characteristics



RESULTS: MULTIVARIATE ANALYSIS

Dependent variable: total number of activities performed by each of the LHDs,
with a range of zero to eight.



LHD characteristics	Prediction of no activity performed (Zero Inflated part)			Prediction of one or more research activities (Negative Binomial Part) (n=440)		
	Odds Ratios	[95% Conf. Interval]	z	Incidence ratios	[95% Conf. Interval]	z
Population						
<10,000						
10,000-24,999	-0.348	(-1.401, 0.705)	-0.65	1.272	(0.802, 2.016)	1.020
25,000-49,999	-0.592	(-1.694, 0.510)	-1.05	1.304	(0.830, 2.047)	1.150
50,000-74,999	-0.505	(-1.712, 0.701)	-0.82	1.253	(0.777, 2.019)	0.920
75,000-99,999	-0.583	(-1.967, 0.801)	-0.83	1.548	(0.909, 2.637)	1.610
100,000-199,999	-1.138	(-2.433, 0.158)	-1.72	1.582*	(1.002, 2.498)	1.970
200,000-499,999	-1.069	(-2.365, 0.226)	-1.62	2.183***	(1.370, 3.478)	3.280
500,000-999,999	-1.903*	(-3.570,- 0.237)	-2.24	2.224***	(1.386, 3.566)	3.310
1,000,000+	-2.328	(-5.182, 0.526)	-1.6	2.053**	(1.227, 3.435)	2.740
Governance						
State						
Local	-1.375*** ^{Sha}	(-2.020, - 0.731)	-4.18 ^{vich}	1.172	0.924, 1.487)	1.310 ²³
Shared		(-0.005, 0.005)			(0.716, 0.716)	

After **controlling for all other variables** in the model:

- LHDs with the following characteristics significantly **higher odds of performing at least one research activity**:
- **serving a population of 500,000-999,999** compared to smallest pop size (<10,000)
- with **local governance** compared to state
- **full time top executive** compared to part time
- had heard of the **county health rankings**
- had performed **Community Health Assessments** in the last five years

Prediction of number of PBR activities performed:

- Population size significant predictor; none of the other variables were significant predictors



Conclusions:

- Economies of scale may matter, even when it is about performance of essential public health services and accreditation requirement (PHAB standard 10)?
- LHDs may play a **supporting role** to others' research.
- The proportion of LHDs engaging in research activities is **encouraging**. Overall, about 62% of LHDs participated in at least one of the research activity.
- Research capacity among all LHDs is likely to increase as LHDs apply for accreditation from the national Public Health Accreditation Board or in their states because **at least three of the PHAB domains** require research skills





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